AFFF FIREFIGHTING SYSTEMS

AFFF SYSTEMS

- HIGH CAPACITY SYSTEMS

AFFF FACTS

- CLEAR TO SLIGHTLY AMBER APPEARANCE
- **INDEFINITE** SHELF LIFE
- STORE AT TEMPERATURES >32^{0}F (if AFFF freezes, it may be used after thawing)
- 94% WATER / 6% FOAM MIX

AFFF FACTS

- MIXES WITH WATER TO FORM AN AQUEOUS FILM WHICH EXCLUDES OXYGEN FROM THE SURFACE OF THE FUEL
- COOLS DUE TO WATER CONTENT
- **EXCELLENT** PENETRATING CHARACTERISTICS / SUPERIOR TO WATER ON CLASS “A” FIRES

AFFF FACTS

- GENERAL PRECAUTIONS
  - AFFF IS **EXTREMELY** CORROSIVE
  - ENSURE SYSTEM IS PROPERLY ALIGNED FOLLOWING EACH USE
  - AVOID INADVERTENT CONTACT WITH ELECTRICAL EQUIPMENT
  - WHEN SYSTEM MAINTENANCE IS BEING PERFORMED ENSURE YOU ARE KEPT ABREAST OF FIRE FIGHTING CAPABILITY

AFFF FACTS

- GENERAL PRECAUTIONS
  - SOME FORMATION/COLLECTION OF H_2S MAY OCCUR IN PIPING/AREAS WHERE AFFF STANDS STAGNANT FOR A PERIOD OF TIME, PARTICULARLY IN THE BALANCED PROPORTIONING SYSTEM

AFFF SYSTEM COMMON ITEMS

- OVERBOARD DISCHARGE REQUIREMENTS
  - <3 NM FROM LAND - NO OVERBOARD DISCHARGE
  - 3 - 12 NM FROM LAND - DISCHARGE PERMITTED IF SHIP SPEED IS 10 KTS OR HIGHER
  - >12 NM FROM LAND - DISCHARGE AS REQUIRED

AFFF SYSTEM COMMON ITEMS

- DC DECK RE-ENTRY HOSE REELS
  - 125’ NON COLLAPSIBLE RUBBER HOSE WITH 1 1/2 INCH 95 GPM VARI NOZZLE (100’ ON MHC)
  - HOSE REEL CUTOUT VALVE NORMALLY CLOSED

AFFF SYSTEM COMMON ITEMS

- ENGINEERING SPACE HOSE REELS
  - 50’ NON COLLAPSIBLE RUBBER HOSE WITH 1 1/2 INCH 95 GPM VARI NOZZLE
  - HOSE REEL CUTOUT VALVE LOCKED OPEN.

AFFF SYSTEM COMMON ITEMS

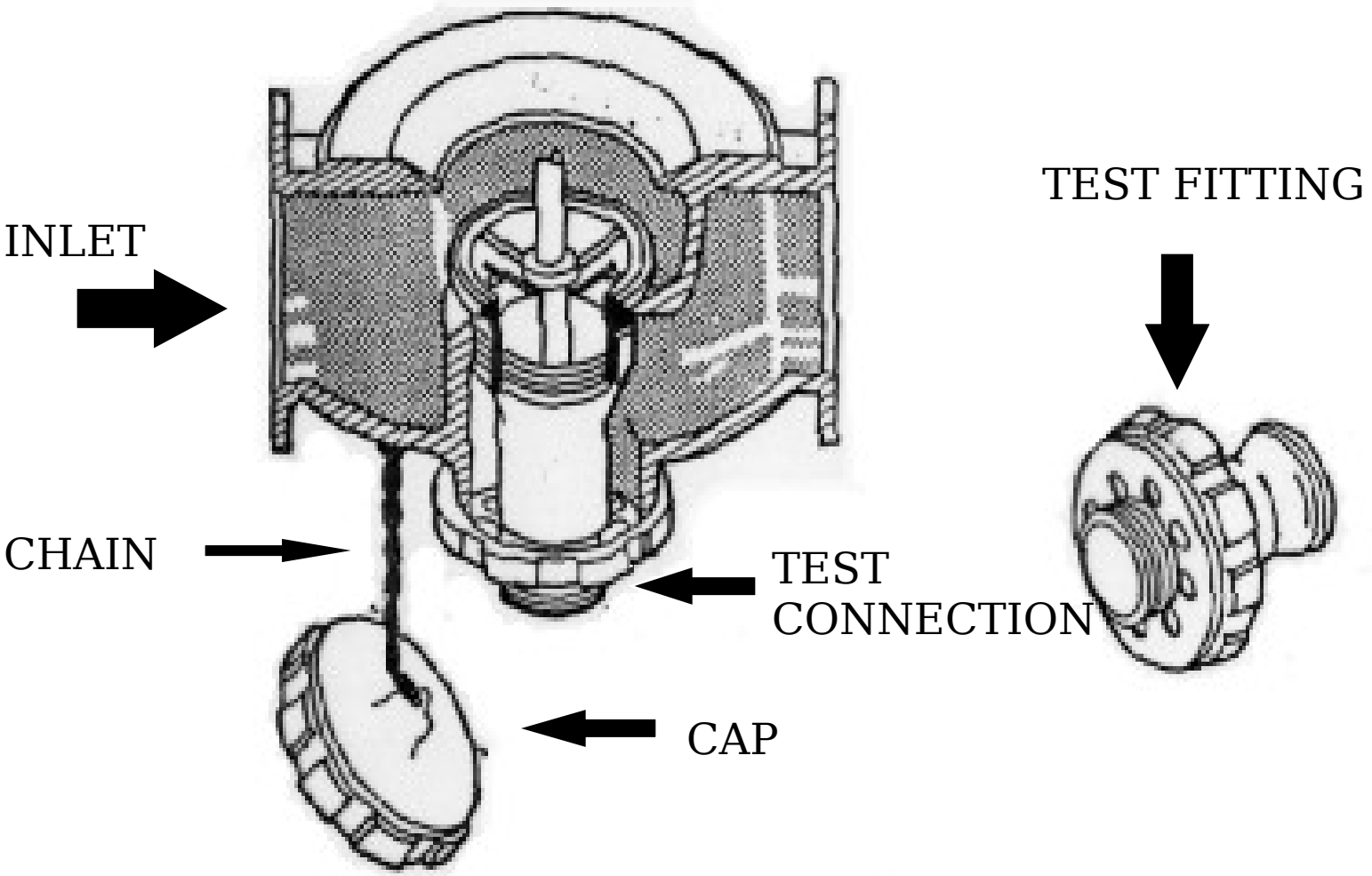
- ENGINEERING SPACE HOSE REELS
  - 27 LB PORTABLE PKP CYLINDER LOCATED NEAR EACH AFFF HOSE REEL

AFFF SYSTEM COMMON ITEMS

- SERVICE VALVE TEST CASTING
  - ALLOWS FOR TESTING OF BILGE SPRINKLING SYSTEM WITHOUT SPRINKLING THE BILGES
- AFFF CONCENTRATE TANKS
  - MANUFACTURED FROM 9010 CUNI OR STAINLESS
  - VENT/VACUUM BREAKER . 05PSIG/.05”Hg

SERVICE VALVE TEST CAST FITTIN

BILGE SPRINKLING SERVICE VALVE

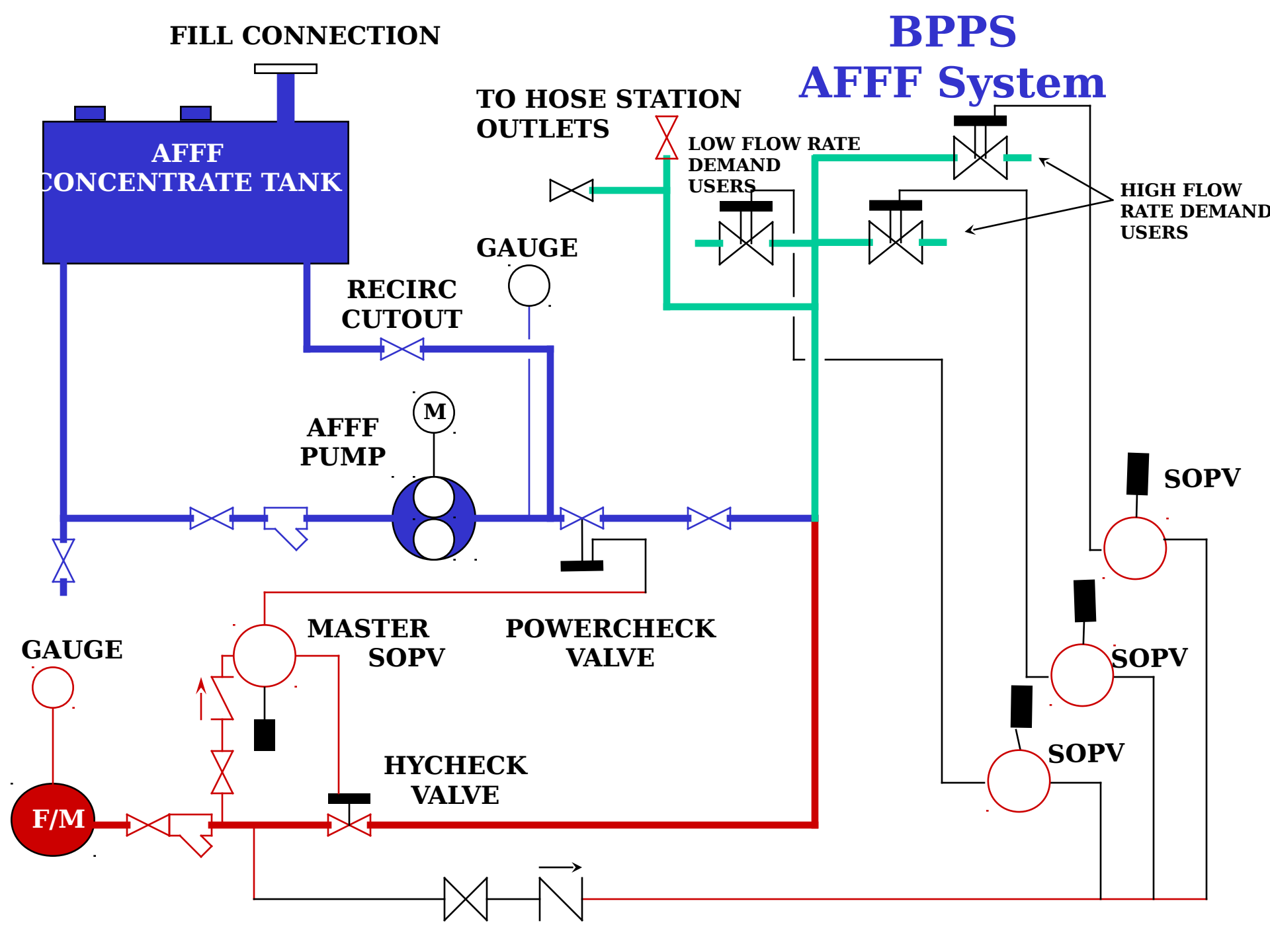


FIXED EDUCTOR SYSTEM

- HIGH POINTS
  - FOUND ON MHC / MCM
  - MCM
    - FORWARD TANK CAPACITY 50 GL
    - AFT TANK CAPACITY 200 GL
  - MHC
    - TANK CAPACITIES 75 GL FWD / AFT

FIXED EDUCTOR SYSTEM

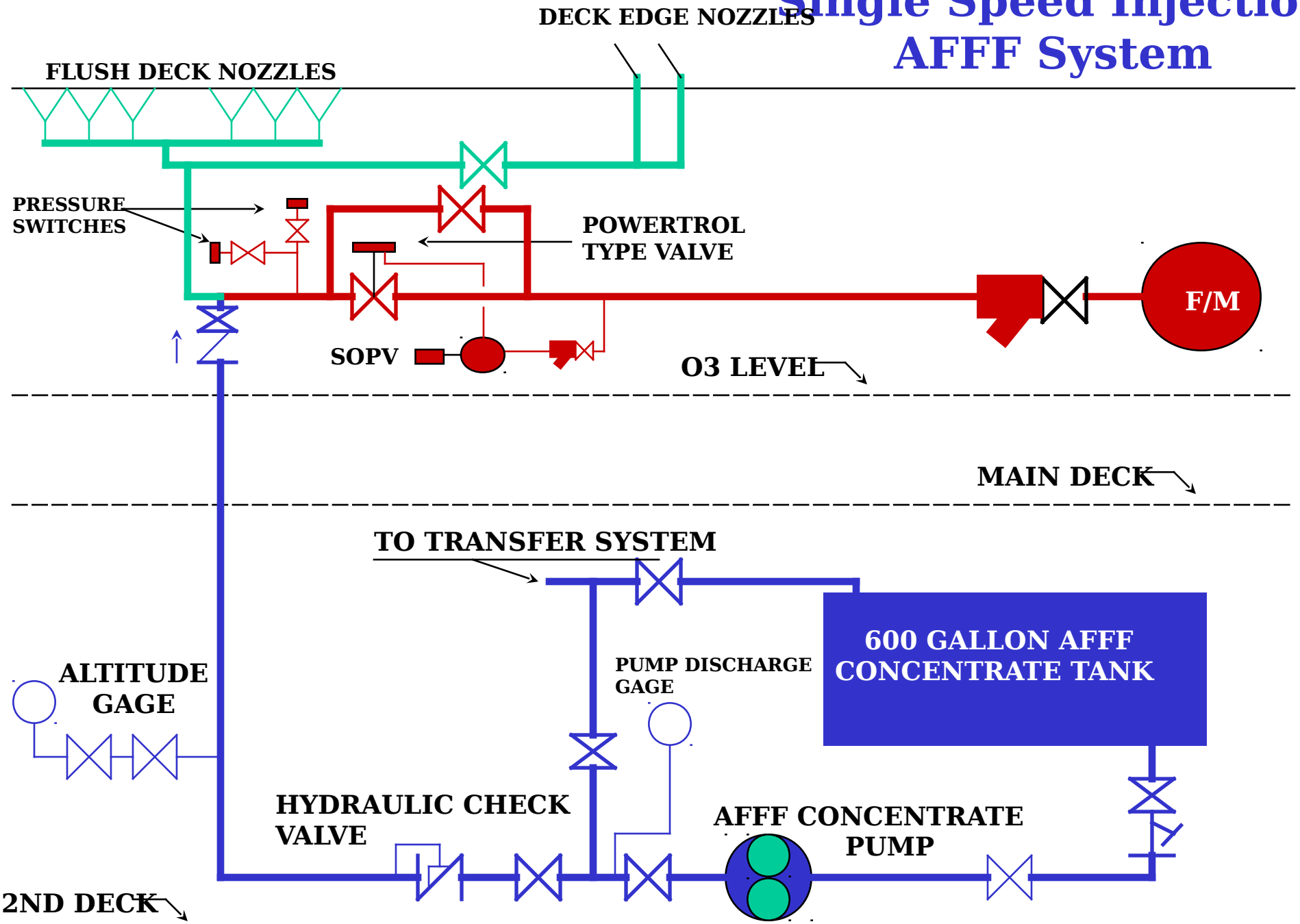
- TANKS ARE REFILLED VIA GRAVITY FROM STORAGE TANK LOCATED NEAR STACKS
- PMS CHECK FOR AFFF CONCENTRATE SEAWATER CONTAMINATION IS DONE QUARTERLY
- OVERHEAD SPRINKLERS INSTALLED IN MHC CLASS SHIPS


BPPS
AFFF System
FILL CONNECTION
AFFF
CONCENTRATE TANK
TO HOSE STATION
OUTLETS
LOW FLOW RATE
DEMAND
USERS
HIGH FLOW
RATE DEMAND
USERS
GAUGE
RECIRC
CUTOUT
M
AFFF
PUMP
SOPV
SOPV
SOPV
GAUGE
MASTER
SOPV
POWERCHECK
VALVE
HYCHECK
VALVE
F/M

2 SPEED INJECTION SYSTEM

- HIGH POINTS
  - PUMPS RATED AT 27/65 GPM @175 PSI
    - 27 GPM - LOW FLOW RATE DEMAND USER (HOSE LINE, ELEVATOR SRINKLER, etc)
    - 65 GPM - HIGH FLOW RATE DEMAND USER (HANGAR SPRINKLER, etc)
    - POSITIVE DISPLACEMENT ROTARY VANE TYPE PUMP
    - MOTOR CONTROLLER POWERED FROM ABT
    - START LOCAL/ REMOTE. MUST BE STOPPED LOCALLY

Single Speed Injection AFFF System



SINGLE SPEED AFFF SYSTEM

- HIGH POINTS
  - SERVICES HANGAR AND FLIGHT DECK AREAS, PUMP ROOMS
  - FLUSH DECK NOZZLES
  - DECK EDGE NOZZLES
  - ELECTRIC PUSHBUTTON AT EACH HOSE OUTLET

HIGH CAPACITY AFFF SYSTEM

- HIGH POINTS
  - TYPES INSTALLED IN NAVY SHIPS
    - BALANCED PRESSURE PROPORTIONER
    - ELECTRIC 2 SPEED AFFF PUMP SYSTEM
    - HIGH CAPACITY SINGLE SPEED PUMP

SUMMARY

- FOAM GENERATING SYSTEMS
  - 2 SPEED INJECTION SYSTEM
  - HIGH CAPACITY SYSTEMS

REVIEW QUESTION

- WHAT RULES APPLY WITH RESPECT TO THE DISCHARGE OF AFFF INTO THE SEA WHEN:
  - INPORT / 3NM FROM LAND?
  - PROHIBITED
  - 3 -12 NM FROM LAND?
  - IF SHIP SPEED IS > 10 KTS
  - >12 NM FROM LAND?
  - DISCHARGE AT WILL

REVIEW QUESTION

- DESCRIBE THE ACTIVATION SEQUENCE IN A 2 SPEED INJECTION SYSTEM WHEN THE LOW FLOW RATE DEMAND CIRCUIT IS ENERGIZED.
- THE MASTER SOPV IS ENERGIZED, STARTING THE AFFF CONCENTRATE PUMP ON SLOW AND OPENING THE HYCHECK AND POWERCHECK VALVES AS WELL AS ENERGIZING THE SOPV FOR THE LOW FLOW RATE GROUP (MINUS HOSE REELS)

REVIEW QUESTION

- WHAT ARE SOME OF THE DIFFERENT TYPES OF HIGH CAPACITY AFFF STATIONS?
- BALANCED PRESSURE PROPORTIONER
- 2 SPEED INJECTION SYSTEM
- SINGLE SPEED INJECTION SYSTEM

INSTALLED FIREFIGHTING SYSTEMS